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Does relativistic kinetic theory predict a viscous analog of the non-equilibrium generalization of Tolman's law?[1] J.H. MONDRAGON-SUAREZ, D. BRUN-BATTISTINI, A. SANDOVAL-VILLALBAZO, Departamento de Fisica y Matematicas, Universidad Iberoamericana, Ciudad de Mexico, A.L. GARCIA-PERCIANTE, Departamento de Matematicas Aplicadas y Sistemas, Universidad Autonoma Metropolitana-Cuajimalpa — In this paper tensor transport processes present in single-component dilute fluids are discussed within the framework of irreversible thermodynamics using elements of general relativity. The formalism suggests the existence of a tensor analog of Tolman's effect. In this case, the traceless symmetric part of the local hydrodynamic velocity gradient is compensated (in principle) with the terms containing sources of curvature in the case of null entropy production. This result is obtained only if the field effects are included in the treatment of the Boltzmann equation through the use of geodesics [1].

[1] A. Sandoval-Villalbazo, A. R. Sagaceta-Mejía, A. L. García- Perciante; Journal of Non-Equilibrium Thermodynamics, 2015, Vol. 40, pp. 93-101.

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